

Fuels Workshop on Regulatory and Non-Regulatory Fuels Activities for 2006

June 30, 2006

California Environmental Protection Agency



Air Resources Board

Agenda

- ➡ Introductions and Schedule
- ➡ Suggested Biodiesel Policy
- ➡ California Predictive Model
 - Tech 5 Model
 - Reactivity
 - Emissions Inventory Update
 - Permeation
- ➡ Presentations by Others
- ➡ Open Discussions
- ➡ Closing Remarks

Future 2006 Workshops

- ➡ July 10 1:30-5:00 Byron Sher Auditorium
- ➡ July 24 1:30-5:00 Byron Sher Auditorium
- ➡ Aug. 11 9:00-12:30 Byron Sher Auditorium
- ➡ Aug. 25 9:00-12:30 Byron Sher Auditorium
 - These workshops will be webcast; conf. call will be arranged

Discussion Topic: Suggested Biodiesel Policy

Discussion Topic: Predictive Model

Predictive Model

- ➡ Committed to the Board to review need for update about every 5 years – last updated 1999
- ➡ Issues
 - Permeation
 - Carbon Monoxide
 - New Data
 - Reactivity
 - Emissions Inventory Model – EMFAC
- ➡ Currently slated to go to the Board in October of 2006

Predictive Model - Hydrocarbons

☞ Four Parts

- Exhaust HC% * IWF * RF +
- Evap HC% * IWF * RF +
- CO% * IWF * RF +
- Permeation% * IWF * RF

☞ Evap HC - Hot Soak, Diurnal, Resting Loss, and Running Loss

Predictive Model – Weighting Factors

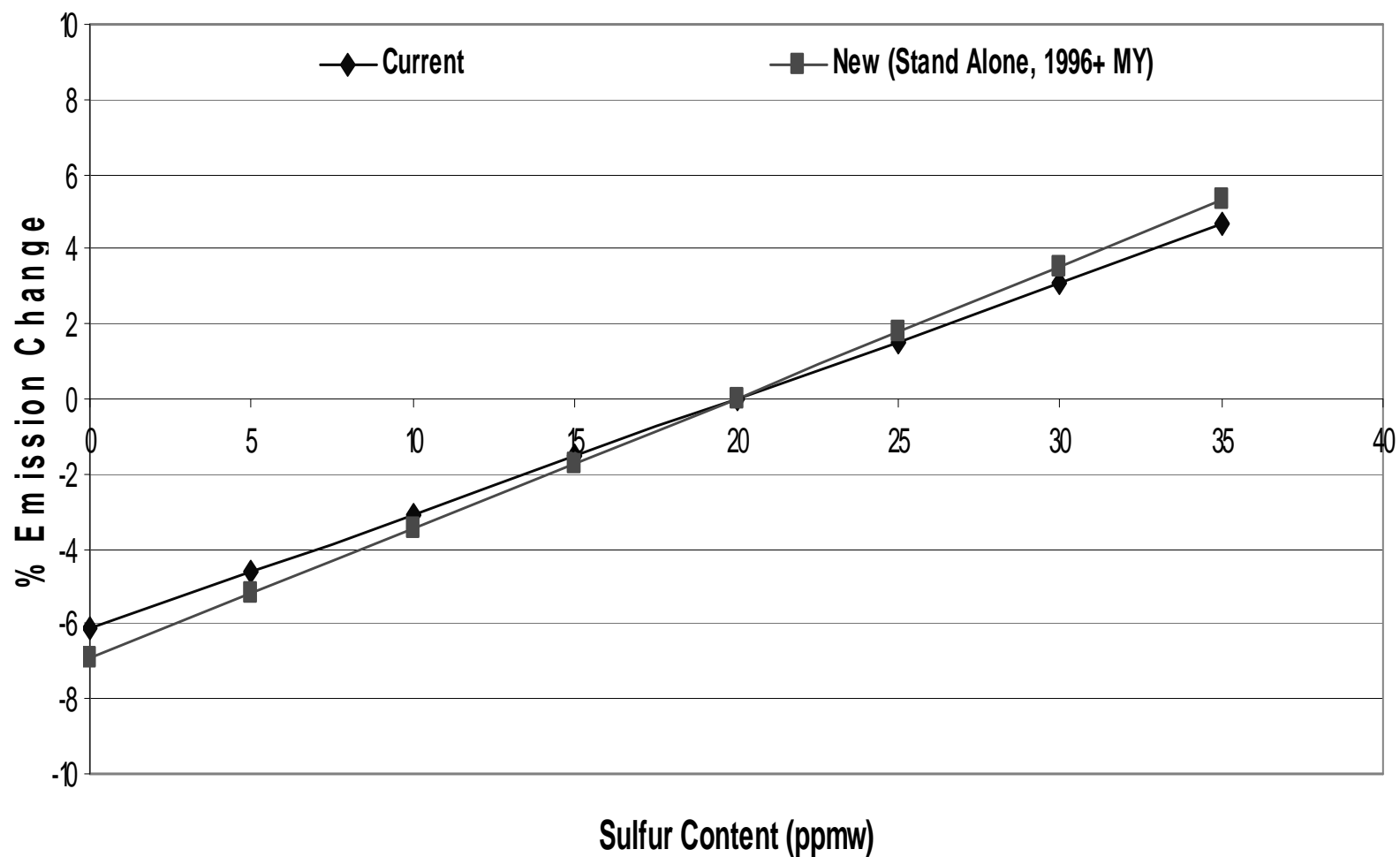
- ☞ Staff is proposing to change how the emission categories are weighted.
- ☞ Currently, each hydrocarbon emissions category is weighted based on Tech 3, 4, and 5 contributions.
- ☞ Each hydrocarbon emissions category will be weighted based on the entire fleet.
- ☞ Necessary to ensure that Permeation emissions are offset.

Tech 5 versus Tech 6

- ☞ Staff was asked to investigate the merits of building a standalone Tech 5 model
- ☞ CaRFG3 Predictive Model calculates the Tech 5 regression coefficient as adjustments to the Tech 4 regression model.
- ☞ Only second order terms investigated in a study were allowed to enter model.
- ☞ Tech 5-Standalone and Tech 5-Adjustment models lead to the same set of second order terms
- ☞ Some interesting responses for Standalone

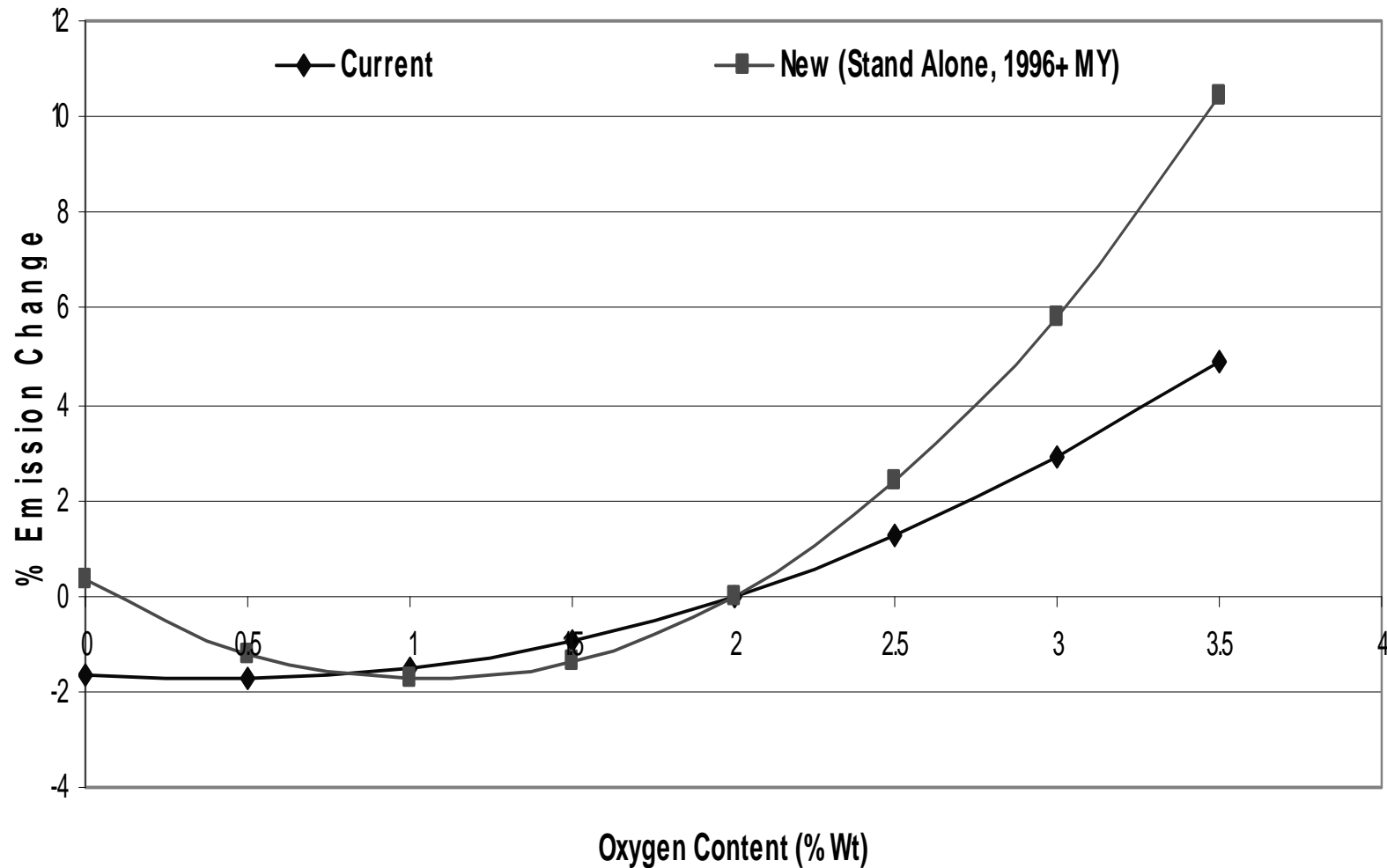
Tech 5 Exhaust NOx Response To Sulfur

(All Other Fuel Properties @ Flat Limits)



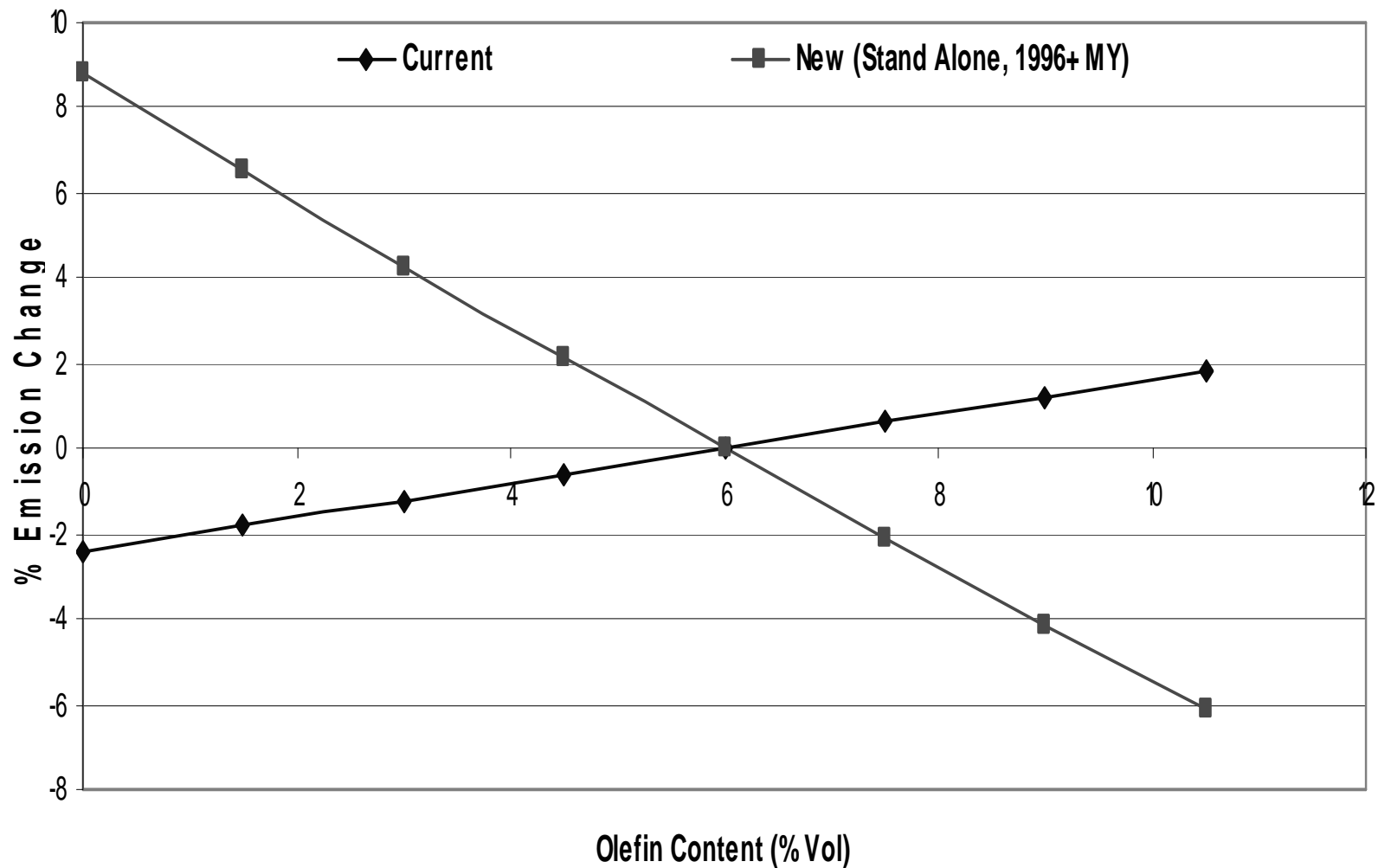
Tech 5 Exhaust NO_x Response To Oxygen

(All Other Fuel Properties @ Flat Limits)



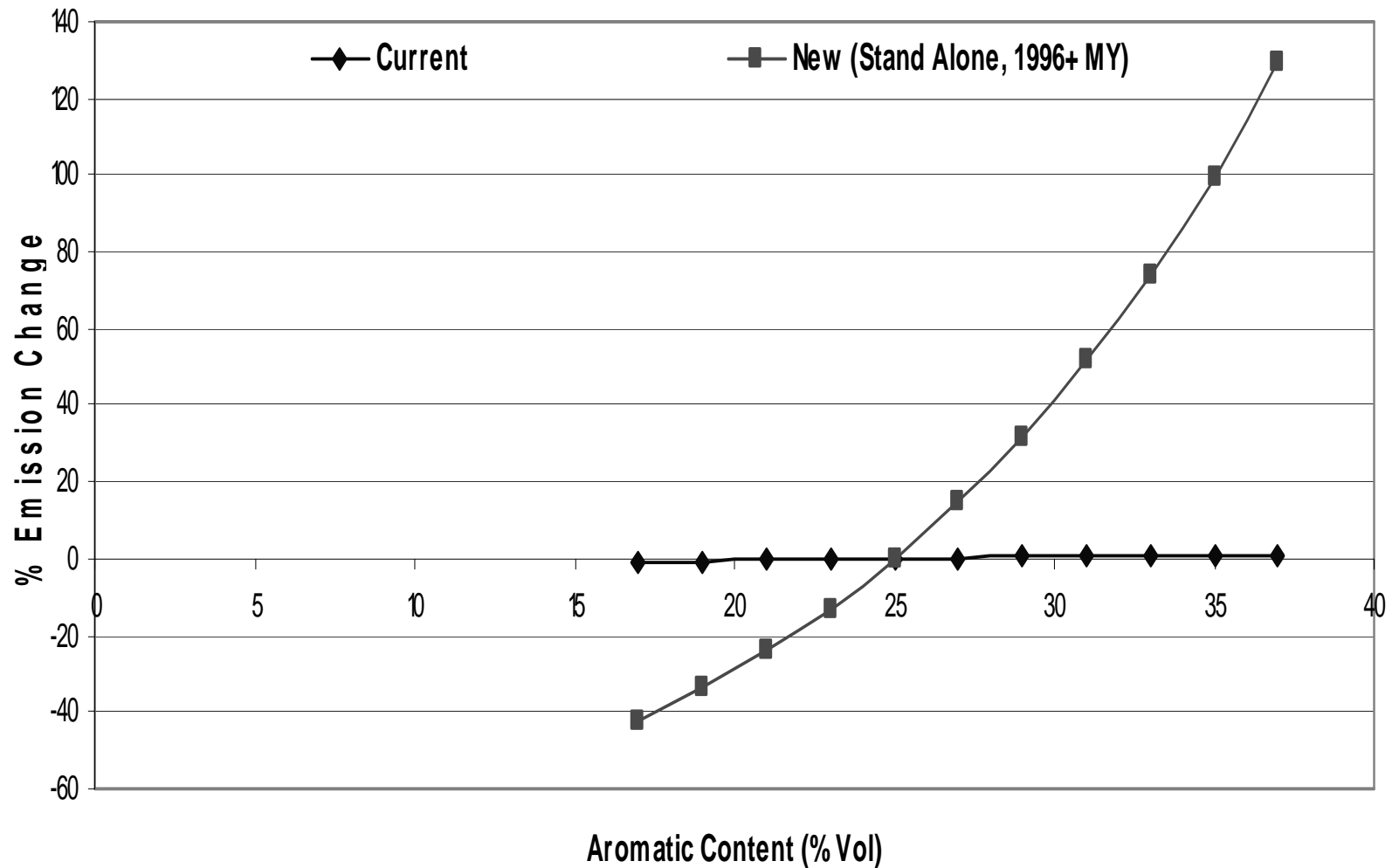
Tech 5 Exhaust NOx Response To Olefin

(All Other Fuel Properties @ Flat Limits)



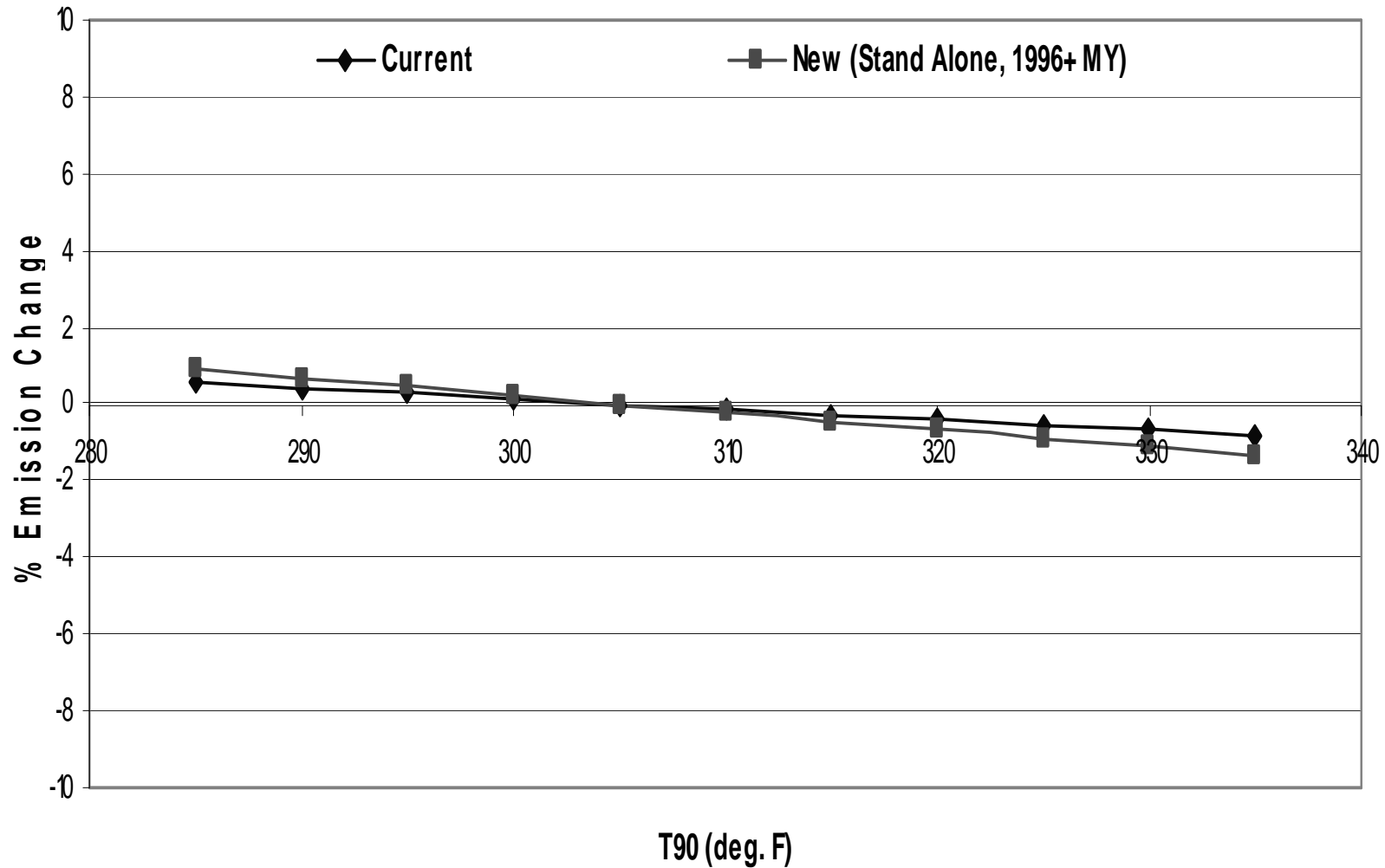
Tech 5 Exhaust NOx Response To Aromatics

(All Other Fuel Properties @ Flat Limits)



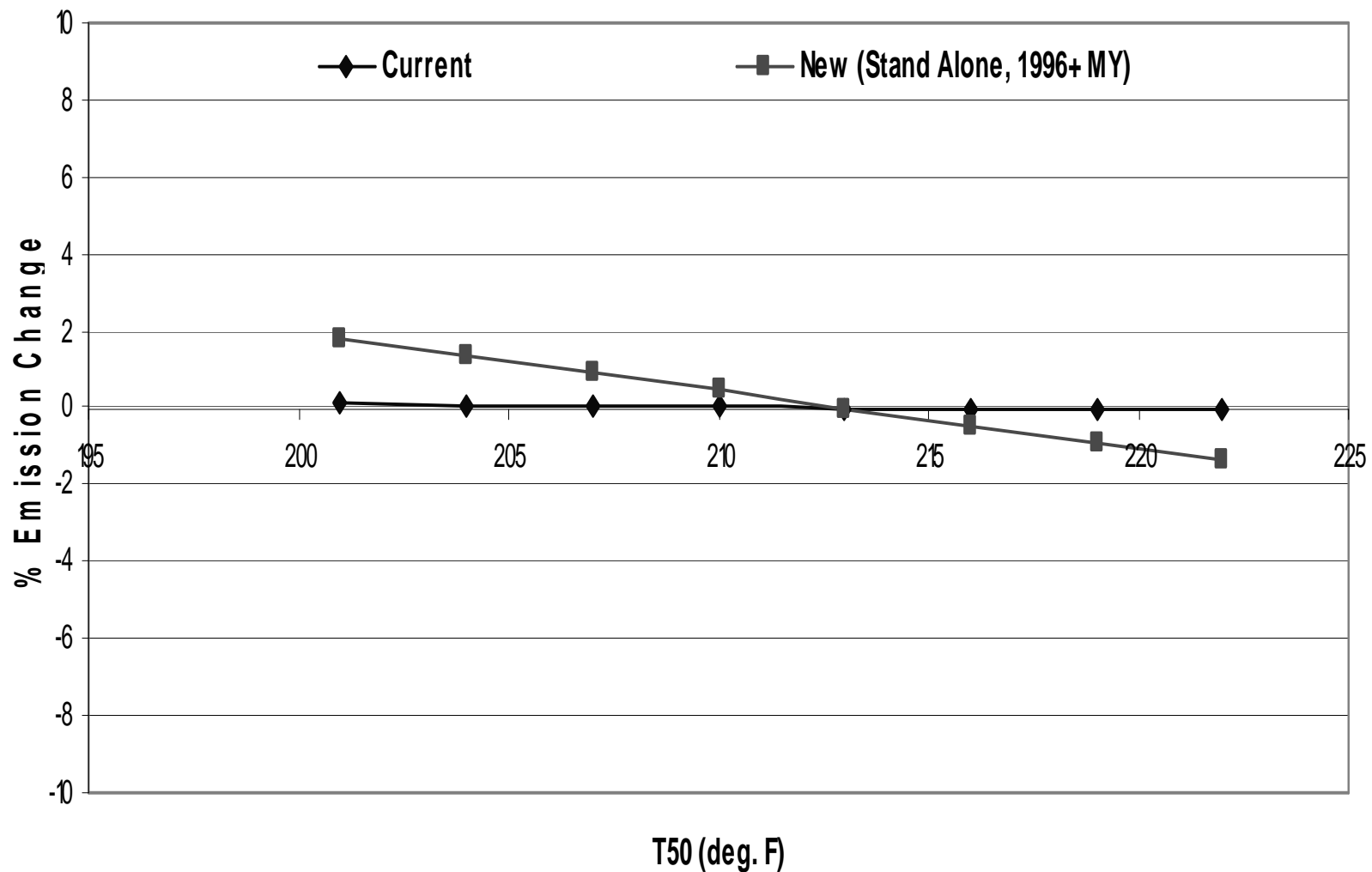
Tech 5 Exhaust NOx Response To T90

(All Other Fuel Properties @ Flat Limits)



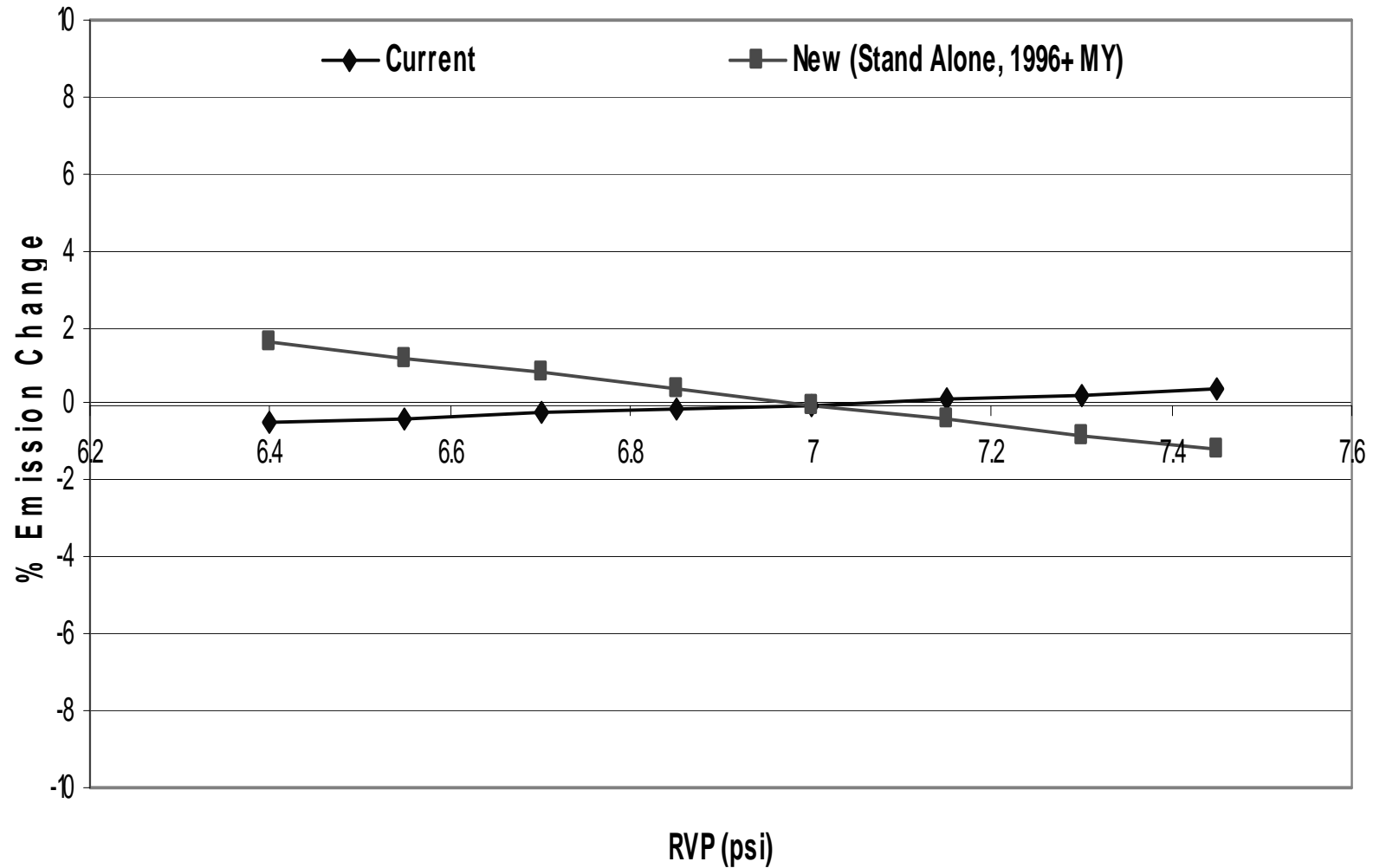
Tech 5 Exhaust NOx Response To T50

(All Other Fuel Properties @ Flat Limits)



Tech 5 Exhaust NOx Response To RVP

(All Other Fuel Properties @ Flat Limits)



Reactivity

2003 Update to MIR Values

- ➡ 23 existing VOCs for which new MIR values differed by 5% or greater
- ➡ 102 new VOCs added to the list
- ➡ Researching old species profiles
- ➡ While average reactivity is changing, the relative difference is still close

Draft Updates to Specific Reactivity Values (ARB EtOH study)

	1998 Specific Reactivity MIR	Updated Specific Reactivity	Difference
HOT SOAK	2.40	3.03	26.3 %
DIURNAL	1.58	2.07	31.3 %
EXHAUST	3.35	4.03	20.4 %

Emissions Inventory

Emissions Inventory Update

- ➡ On-road
- ➡ Off-road
- ➡ Documentation available through Reformulated Gasoline webpage at:
<http://www.arb.ca.gov/fuels/gasoline/meeting/2006/mtg2006.htm>

Permeation - What's Next

- ➡ The CRC is proceeding with a second stage of the E-65 test program
- ➡ Two additional vehicles: LEV II and PZEV
- ➡ Additional fuels: 10% and 20% ethanol and a higher aromatics fuel
- ➡ E85 and a Flexible Fueled Vehicle
- ➡ Interim Final Report available soon
- ➡ Interim report will not present E20 information

Presentations by Others

Open Discussions

Closing Remarks